CLAIMS:

1.   A method for determining edge roughness of a feature in a mask, the method comprising:

determining a centerline of the feature based on a representation of the mask;

measuring a first length of a first rib extending from the centerline to one edge of the feature;

measuring a second length of a second rib extending from the centerline to the one edge of the feature; and

comparing the first and second lengths to determine the edge roughness.

2.   The method of Claim 1, wherein the representation includes a layout of the mask.

3.   The method of Claim 1, wherein the representation includes a layout of one layer of an integrated circuit.

4.   The method of Claim 1, wherein the feature is a line.

5.   The method of Claim 1, wherein the feature is a contact.

6.   A method of repairing a mask, the method comprising:

determining an edge roughness of a feature on the mask, wherein if the edge roughness is outside a predetermined value, then using a lithography tool to repair the mask.

7.   The method of Claim 6, wherein the predetermined value is selected by a user.

8. The method of Claim 6, wherein determining the edge roughness includes determining a centerline of the feature based on a defect-free representation of the feature.

9. The method of Claim 6, wherein the feature includes at least one of a line and a contact.

10. A method of repairing a wafer, the method comprising:
determining an edge roughness of a feature on the wafer, wherein if the edge roughness is outside a predetermined value, then using a lithography tool to repair the wafer.

11. The method of Claim 10, wherein the predetermined value is selected by a user.

12. The method of Claim 10, wherein determining the edge roughness includes determining a centerline of the feature based on a defect-free representation of the feature.

13. The method of Claim 10, wherein the feature includes at least one of a line and a contact.

14. A method of determining corner rounding of a contact in a lithographic mask, the method comprising:
determining a centerline of the contact in a first direction;
providing a plurality of theoretical cuts through the contact in a second direction substantially perpendicular to the first direction, wherein each cut provides a rib extending from the centerline to an edge of the contact; and

comparing at least two ribs to determine corner rounding, one rib being located near a corner of the contact and another rib not being located near the corner.

15.   A method of determining the symmetry of a contact in a lithographic mask, the method comprising:

determining a first centerline of the contact in a first direction;

providing a plurality of theoretical cuts through the contact in a second direction substantially perpendicular to the first direction, wherein each cut provides a first critical dimension extending from a first edge of the contact to a second edge of the contact;

determining a centerline of the contact in the second direction;

providing a plurality of theoretical cuts through the contact in a first direction substantially perpendicular to the first direction, wherein each cut provides a second critical dimension extending from a third edge of the contact to a fourth edge of the contact; and

comparing the first and second critical dimensions to determine the symmetry of the contact.

16.   A method of repairing a mask, the method comprising:

determining any corner rounding of a contact on the wafer, wherein if the edge roughness is outside a predetermined value, then using a lithography tool to repair the wafer.

17.   The method of Claim 16, wherein the predetermined value is selected by a user.

18. The method of Claim 16, wherein determining the edge roughness includes determining a centerline of the feature based on a defect-free representation of the feature.

19. An integrated circuit comprising:

a plurality of features for performing a function; and

at least one repaired feature, wherein the at least one repaired feature resulted from an automatic defect severity score.

20. The integrated circuit of Claim 19, wherein the at least one repaired feature includes a line.

21. The integrated circuit of Claim 19, wherein the at least one repaired feature includes a contact.

22. The integrated circuit of Claim 19, wherein the at least one repaired feature includes an OPC feature.

23. The integrated circuit of Claim 19, wherein the at least one repaired feature includes one of a hammerhead, a serif, and a bias.

24. A mask inspection system, the system comprising:

means for generating a simulated wafer image of a feature on a mask;

means for determining a centerline for the simulated wafer image based on a defect-free representation of the feature; and

means for measuring an aspect of the simulated wafer image based on the centerline.

25.   The system of Claim 24, wherein the aspect includes line edge roughness.

26.   The system of Claim 25, further including means for evaluating possible repairs made to the mask based on the line edge roughness.

27.   The system of Claim 26, further including a mask repair tool receiving signals from the means for evaluating possible repairs.

28.   The system of Claim 25, wherein the aspect includes corner rounding.

29.   The system of Claim 28, further including means for evaluating possible repairs made to the mask based on the corner rounding.

30.   The system of Claim 29, further including a mask repair tool receiving signals from the means for evaluating possible repairs.

31.   An inspection system for analyzing a feature on a mask, the system comprising:
 means for generating a simulated wafer image of the feature;
 means for determining a centerline for the simulated wafer image of the feature based on a defect-free representation of the feature; and
 means for determining whether the feature passes a predetermined standard.

32.   The system of Claim 31, wherein the predetermined standard includes line edge roughness of the simulated wafer image.

33.   The system of Claim 32, further including means for evaluating possible repairs made to the mask based on the line edge roughness.

34.   The system of Claim 33, further including a mask repair tool receiving signals from the means for evaluating possible repairs.

35.   The system of Claim 31, wherein the predetermined standard includes symmetry of the simulated wafer image.

36.   The system of Claim 35, wherein the symmetry indicates corner rounding of the simulated wafer image.

37.   The system of Claim 36, further including means for evaluating possible repairs made to the mask based on the corner rounding of the simulated wafer image.

38.   The system of Claim 37, further including a mask repair tool receiving signals from the means for evaluating possible repairs.

39.   A method of quantifying a quality of a feature on a mask, the method comprising:
  (a) determining a centerline of the feature;
  (b) measuring a first length of a first rib extending from the centerline to one edge of the feature;

(c) measuring a second length of a second rib extending from the centerline to the one edge of the feature;

(d) comparing the first and second lengths;

(e) continuing steps (b), (c), and (d) for a plurality of times; and

(f) calculating a score for the quality of the feature based on steps (a)-(e).

40. A physical mask comprising:

at least one feature being modified based on analyzing a centerline of a simulated wafer image of the feature, the centerline determined by a defect-free representation of the feature; and

at least one feature being unmodified based on analyzing the centerline.

41. The mask of Claim 40, wherein the defect-free representation of the feature includes a reference mask, the reference mask corresponding to a defect-free physical mask.

42. Computer software for determining edge roughness of a feature in a mask, the software comprising:

means for determining a centerline of the feature based on a representation of the mask;

means for measuring a first length of a first rib extending from the centerline to one edge of the feature;

means for measuring a second length of a second rib extending from the centerline to the one edge of the feature; and

means for comparing the first and second lengths to determine the edge roughness.

43. Computer software for determining corner rounding of a contact in a lithographic mask, the software comprising:

means for determining a centerline of the contact in a first direction;

means for providing a plurality of theoretical cuts through the contact in a second direction substantially perpendicular to the first direction, wherein each cut provides a rib extending from the centerline to an edge of the contact; and

means for comparing at least two ribs to determine corner rounding, one rib being located near a corner of the contact and another rib not being located near the corner.

44. Computer software for determining the symmetry of a contact in a lithographic mask, the software comprising:

means for determining a first centerline of the contact in a first direction;

means for providing a plurality of theoretical cuts through the contact in a second direction substantially perpendicular to the first direction, wherein each cut provides a first critical dimension extending from a first edge of the contact to a second edge of the contact;

means for determining a centerline of the contact in the second direction;

means for providing a plurality of theoretical cuts through the contact in a first direction substantially perpendicular to the first direction, wherein each cut provides a second critical dimension extending from a third edge of the contact to a fourth edge of the contact; and

means for comparing the first and second critical dimensions to determine the symmetry of the contact.